Characterization of bioactive cyclic oligopeptides of freshwater cyanobacteria (microcystins, cyanopeptolins, cyclamides)

Blom, Judith F ; Höger, Stefan J ; Jüttner, Friedrich

Abstract: Cyanobacteria produce a variety of unusual secondary metabolites, the function of some of them still remains unclear. Research in the last years has primarily focused on cyanobacterial microcystins that have severe impact on humans and livestock. While at the beginning the main focus point was on the structure elucidation and functionality of microcystins, in recent years also cyanopeptolins and cyclamides have become important issues. Today also the possible ecological role of these metabolites is an attractive goal of research. In this protocol methods for the extraction, determination, and quantification using high-performance liquid chromatography (HPLC), liquid chromatography-mass spectrometry (LC-MS), and gas chromatography-mass spectrometry (GC-MS) are described as well as methods (bioassay-guided fractionation, enzyme linked immunosorbent assay) to find toxins and protease inhibitors in cyanobacterial extracts. In addition, methods for the determination of the molar absorption coefficient, necessary for the quantification of small amounts of the oligopeptides, are described.

Protocols on Algal and Cyanobacterial Research

Editors
Suvendra Nath Bagchi
Diethelm Kleiner
Prasanna Mohanty

Alpha Science International Ltd.
Oxford, U.K.

Contents

Section 2: Assessment of Biological Activities

Section 3: Toxins